

REMARKS/ARGUMENTS

Drawings:

Applicant notes the acceptance by the Examiner of the drawings filed on Sept. 19, 2003.

Status of the Claims:

Claims 1 – 20 and 22 are pending. Claims 1 – 20 and 22 have been rejected. Claim 10 has been amended voluntarily to correct an inadvertent grammatical error. No new matter has been added.

Claim Rejections under 35 USC 112:

The Examiner has rejected claims 13 – 16 under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

On page 2 of the Final Office Action, the Examiner has stated that “in claim 13, an electric field is applied to all embodiments, even the chromatographic ones, which do not use electric fields. This makes the scope of the claim unclear.”

In response, claim 13 is being amended to simply refer to "separating" the sample into fractions, and is noted that this language closely tracks the language of original claim 13, step (b), so that no new matter has been added. This language recognizes that, due to the Markush alternatives, in the final step, it is impractical to attempt to cover all alternatives in the second step. A similar amendment has been made to the penultimate step of claim 13, and similar considerations and arguments apply.

Consequently, Applicant respectfully asserts that claim 13 as amended and its dependent claims 14 – 16 are proper under 35 USC 112, and the rejection of claims 13 – 16 should be withdrawn.

Claim Rejections under 35 USC 103(a):

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. (MPEP 2143.03)

The Examiner has rejected claims 1 – 4 and 10 – 12 under 35 USC 103(a) as being unpatentable over WO 95/33989. Applicant traverses this rejection in view of the remarks that follow.

On page 4 of the Final Office Action, the Examiner states “WO further teaches a method of introducing fractions from the first channel to the second channel by transferring aliquots at predetermined regular time intervals. Subsequent aliquots are transferred after the preceding aliquot has traveled far enough in to the second channel (p. 20, first paragraph). See also the example on page 21 in which a mixture of carbohydrates is separated in a first electrophoresis capillary, a first selected component is transferred to the second electrophoresis capillary with selected enzyme reagents and the reaction products separated in the second capillary, and the process repeated”. The Examiner acknowledges that “WO fails to explicitly teach separately passing the fractions through the second channel”, but then states that “it would have been obvious to wait until a preceding sample exited the second channel before injecting a subsequent sample”.

The exact quote from page 20 of WO 95/33989 is “As an alternative to the delay-time method for selecting material to be transferred between capillaries, selection can be effected by periodically transferring an aliquot of the contents of the first capillary at predetermined, regular, intervals.” In this context, the contents of the first capillary have been divided into equal parts, and an aliquot is one of these parts. In other words, what is transferred from the first capillary to the second capillary in each instance is a portion of the contents of the first capillary. Firstly, it is incorrect to consider an aliquot a “fraction” as recited in the claims of the instant application, since the aliquots are not the result of a separation process. Secondly, although this transfer takes place after the separation of the sample into sample bands (“fractions”), there is no teaching or suggestion in WO that a given aliquot includes one and not two or more of these fractions. In all likelihood, a given aliquot includes portions of two or more of the fractions. Therefore, according to WO, the second capillary does not “*receive each of the fractions separately*”, as recited in claim 1, but rather receives two or more of the fractions simultaneously, when a single aliquot is transferred to the second capillary. Increasing the time intervals between the periodic transfers of aliquots will not result in each of the fractions being received separately by the second capillary.

The exact quote from page 21 of WO 95/33989 is “a carbohydrate mixture is separated in a first CE dimension, a selected component is transferred to a second capillary along with the addition of selected enzyme reagents, the enzyme-sample mixture is allowed to incubate for a selected time, and the mixture is electrophoresed in a second CE dimension ... The shift in electrophoretic mobility of the selected component between the first and second CE dimensions is then correlated with the known activity of the particular enzyme reagent used. The process is then repeated, using different enzyme reagents in each cycle. By repeating this series of steps, each component in a carbohydrate mixture can be sequenced without any manual intervention.” Inherent in this method is that a single selected component is transferred to the second capillary at a time. In the present invention, separated fractions contain one or more components of interest (page 10, lines 23-25 of the present application) and the fractions are selectively transferred to the second separation means. Unlike WO95/33989, in the present invention, all components contained within the selected fraction are transferred to the second separation means where the components are separate into the individual component. The WO teaches of transferring a selected component to the second separation means. Therefore, the second capillary receives a single component instead of a separated fraction at each repetition of the process, and does not “*receive each of the fractions separately*”, as recited by claim 1.

Claim 4 recites “*an interface chamber in which fractions separated from a sample by said first separation means are to be mixed one at a time ... prior to subjection of each of the fractions one at a time to said second separation means*”.

Claim 10 recites “*separately passing each of the sample fractions out of the first separation means into the interface means; and separately passing each fraction through a second separation means*”.

For at least the reasons given above, WO 95/33989 as modified by the Examiner does not teach or suggest all the limitations of claims 1, 4 and 10. Claims 2 – 3 and 11 – 12 are dependent from claims 1 and 10, respectively, and include all the limitations of the independent claims. Therefore, WO 95/33989 as modified by the Examiner does not teach or suggest all the limitations of claims 2 – 3 and 11 – 12.

Accordingly, the Office Action has failed to establish a *prima facie* showing of obviousness, and the rejection of claims 1 – 4 and 10 – 12 under 35 USC 103(a) as unpatentable over WO 95/33989 should be withdrawn.

The Examiner has rejected claim 15 under 35 USC 103(a) as being unpatentable over WO 95/33989 as applied to claims above, and further in view of US Patent No. (Moring).

Claim 15 is dependent from claim 14, which is dependent from independent claim 13. The Examiner has not rejected claim 13 under 35 USC 103(a) as being unpatentable over WO 95/33989, and therefore it is unclear what the Examiner meant by "as applied to claims above". Nevertheless, in view of the remarks above regarding WO 95/33989, Applicant respectfully asserts that WO 95/33989 as modified by the Examiner does not teach or suggest all the limitations of claim 13, in particular the limitation "*passing each fraction separately through a second separation means*".

Moring fails to cure the deficiencies of WO 95/33989. In particular, Moring and WO 95/33989, alone or in combination, do not teach or suggest the limitation "*passing each fraction separately through a second separation means*", as recited by claim 13. Claim 15 includes all the limitations of claim 13. Accordingly, the Office Action has failed to establish a *prima facie* showing of obviousness, and the rejection of claim 15 under 35 USC 103(a) as being unpatentable over WO 95/33989 in view of Moring should be withdrawn.

The Examiner has rejected claims 5 – 9, 16 – 20 and 22 under 35 USC 103(a) as being unpatentable over WO 95/33989 as applied to claims above, and further in view of US Patent 6,387,234 (Yeung et al.).

Claim 16 is dependent from claim 15, which is dependent from claim 14, which is dependent from independent claim 13. The Examiner has not rejected claim 13 under 35 USC 103(a) as being unpatentable over WO 95/33989, and therefore it is unclear what the Examiner meant by "as applied to claims above".

Regarding claims 5 – 6, Applicant has explained above that WO 95/33989 as modified by the Examiner does not teach or suggest all the limitations of claim 4. Yeung et al. fails to cure the deficiencies of WO 95/33989, since Yeung et al. does not teach or suggest "*an interface chamber in which fractions separated from a sample by said first separation means are to be mixed one at a time ... prior to subjection of each of the fractions one at a time to said second separation means*", as recited by claim 4. Claims 5 – 6 are dependent from claim 4 and include all the limitations of the independent claim.

Regarding claims 7 – 9, Applicant respectfully asserts that WO 95/33989 as modified by the Examiner and Yeung et al., alone and in combination, do not teach or suggest all the limitations of independent claim 7, including the limitation “*wherein each first separation means is to separate a sample introduced therein into fractions, and a respective second separation means is to separately receive each of the fractions and to separate each received fraction into components*”. Claims 8 – 9 are dependent from claim 7 and include all the limitations of the independent claim.

Accordingly, the Office Action has failed to establish a *prima facie* showing of obviousness, and the rejection of claims 5 – 9, 16 – 20 and 22 under 35 USC 103(a) as being unpatentable over WO 95/33989 in view of Yeung et al. should be withdrawn.

The Examiner has rejected claims 1, 4 – 5, 7 – 9, 10, 13 – 14, 17 – 20 and 22 under 35 USC 103(a) as being unpatentable over Yeung et al. in view of WO 95/33989.

On page 6 of the Final Office Action, the Examiner states “Yeung fails to teach sequential injection of fractions. The teachings of WO are given above. It would have been obvious inject [sic] sequential fractions from the first separation channel into the second channel in order to provide an alternative injection scheme as taught by WO. It would have been obvious to wait until a preceding sample exited the second channel before injecting a subsequent sample if one were willing to forego the timesavings of injecting the second sample when the preceding sample was sufficiently far along in the channel not to interfere with the subsequent sample.”

As explained above with respect to the rejection of claims 1 – 4 and 10 – 12 under 35 USC 103(a) as being unpatentable over WO 95/33989, WO 95/33989, even when modified as proposed by the Examiner, does not teach or suggest having the second capillary “*receive each of the fractions separately*” as recited by claim 1, or similar limitations recited by claims 4 and 10. Similar limitations are recited by claims 7 and 13, as noted above, and by claim 17. Additionally, the Examiner admits that Yeung et al. do not teach or suggest such limitations. Therefore, the Examiner’s proposed combination of WO 95/33989 and Yeung et al. does not teach or suggest all the limitations of claims 1, 4, 7, 10, 13 and 17. Claims 5, 8 – 9 and 22, 14, and 18 – 20 are dependent from claims 4, 7, 13 and 17, respectively, and include all the limitations of the independent claims. Therefore, the Examiner’s proposed combination of WO 95/33989 and Yeung et al. does not teach or suggest all the limitations of claims 5, 8 – 9, 14, 18

– 20 and 22. Accordingly, the Office Action has failed to establish a *prima facie* showing of obviousness, and the rejection of claims 1, 4 – 5, 7 – 9, 10, 13 – 14, 17 – 20 and 22 under 35 USC 103(a) as being unpatentable over Yeung et al. in view of WO 95/33989 should be withdrawn.

The Examiner has rejected claim 15 under 35 USC 103(a) as being unpatentable over Yeung et al. and WO 95/33989 as applied to claims above, and further in view of Moring.

Claim 15 depends from claim 14, which depends from independent claim 13. As discussed above, WO 95/33989 as modified by the Examiner does not teach or suggest all the limitations of claim 13, in particular the limitation “*passing each fraction separately through a second separation means*”. Similarly, neither Moring nor Yeung et al. teach or suggest such a limitation. Claim 15 includes all the limitations of claim 13. Therefore, Yeung et al., Moring, and WO 95/33989, alone or in combination, do not teach or suggest all the limitations of claim 15. Accordingly, the Office Action has failed to establish a *prima facie* showing of obviousness, and the rejection of claim 15 under 35 USC 103(a) as being unpatentable over Yeung et al. and WO 95/33989 in view of Moring should be withdrawn.

Having fully and completely responded to the Office Action, Applicant submits that all of the claims are now in condition for allowance, an indication of which is solicited. If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, the Examiner is requested to call Applicant's attorney at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,
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